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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PADMANABHAN, KARTIC

ART UNIT PAPER NUMBER

1641

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,777	AUDEH ET AL.	
	Examiner Kartic Padmanabhan	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 August 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 6-13,15,16,18,20,21,30-32 and 50-54 is/are pending in the application.
 - 4a) Of the above claim(s) 52-54 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 6-13,15,16,18,20,21,30-32 and 50-51 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) 6-13,15,16,18,20,21,30-32 and 50-54 are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/30/04 has been entered.

Election/Restrictions

2. Newly submitted claims 52-54 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

- I. Claims 6-13, 15-16, 18, 20-21, 30-32, and 50-51, drawn to a liquid composition, classified in class 435, subclass 4.
- II. Claims 52-54, drawn to a method for preparing a colloidal composition, classified in class 436, subclass 518.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the method of Group II is drawn to preparing colloidal compositions for use in preparing solid phase assays; however, the composition of Group I does not require the particulars of the process steps

of Group II for its manufacture, and can be produced by process other than that recited in Group II.

Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, and the search required for one group is not required of the others, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 52-54 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 6, 10-13, 16, 18, 20-21, 30-32, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Ness et al. (US Pat. 5,667,976) in view of Grieve et al. (US Pat. 6,391,569 B1) and Malvar et al. (US Pat. 6,110,464).

Van Ness et al. teach solid supports for nucleic hybridization assays, wherein nylon coated magnetic beads may be used (abstract and Col. 14). Oligonucleotides are immobilized via covalent attachment onto the beads and serve as probes (abstract and claim 1). The beads may be employed free in solution (abstract). The reference also teaches that the oligonucleotides immobilized on the beads can serve as electrophiles for the covalent attachment of proteins and antibodies. In addition, labels, such as colored labels (dyes), may be used in the hybridization assays. However, the reference does not teach immobilization of proteins.

Grieve et al. teach the immobilization of a protein on a solid support or matrix, which may be particulate such as nylon, nitrocellulose, or PVDF. Beads may be used as the substrate of the reference. The immobilized protein of the reference is used to bind antibody (Col. 9). However, neither reference teaches the use of a blocking agent to block unoccupied binding sites.

Malvar et al. teach the use of BSA to coat a surface such that nonspecific adsorption sites are blocked, thereby reducing background caused by nonspecific binding (Col. 11).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize proteins on beads as taught by Grieve et al. with the composition of Van Ness et al. because Grieve et al. teach that proteins may be immobilized on solid supports, such as beads. As such, one would have had a reasonable expectation of success in immobilizing proteins instead of oligonucleotides on the beads of Van Ness et al. It would have been *prima facie* obvious to use the blocking agent of Malvar et al. with the modified composition of Van Ness and Grieve to prevent background caused by nonspecific binding. It would have also been obvious to one of ordinary skill in the art at the time of the invention to remove the liquid in the modified colloidal suspension of Van Ness et al., Grieve et al., and Malvar et al. and arrive at a powdered form because powder is well known in the art to have greater stability and shelf life in comparison to a liquid form. In addition, such a form is easier to package in a kit, which provides increased convenience and economy. Also, a powder form may be easily reconstituted, as necessary, prior to use. Further, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to change the size of the particles to be within the range of the claims as an obvious matter of design choice. Such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Finally, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize molecules to the modified particles Van Ness et al., Grieve et al. and Malvar et al. via non-covalent or electrostatic binding, as well as adsorption because all are well-

known immobilization methods in the art, and one of skill would have had a reasonable expectation of success in using any of these methods to immobilize the molecules onto particles.

7. Claims 6-13, 16, 20-21, 30-32, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (US Pat. 5,194,372) in view of Grieve et al. (US Pat. 6,391,569 B1) and Malvar et al. (US Pat. 6,110,464).

Nagai et al. teach methods for detecting disorders, wherein fine particles in solution have at least two types of nucleic acid singles stranded probes immobilized thereon. The probes are complementary to first and second regions, respectively, and are exclusive of each other (see claim 1). However, the reference does not teach immobilization of proteins.

Grieve et al. teach the immobilization of a protein on a solid support or matrix, which may be particulate such as nylon, nitrocellulose, or PVDF. Beads may be used as the substrate of the reference. The immobilized protein of the reference is used to bind antibody (Col. 9). However, neither reference teaches the use of a blocking agent to block unoccupied binding sites.

Malvar et al. teach the use of BSA to coat a surface such that nonspecific adsorption sites are blocked, thereby reducing background caused by nonspecific binding (Col. 11).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize proteins on beads as taught by Grieve et al. with the composition of Nagai et al. because Grieve et al. teach that proteins may be immobilized on solid supports, such as beads. As such, one would have had a reasonable expectation of success in immobilizing proteins instead of single strand nucleic acids on the particles of Nagai et al. It would have been *prima facie* obvious to use the blocking agent of Malvar et al. with the modified composition of

Nagai et al. and Grieve to prevent background caused by nonspecific binding. It would have also been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use nitrocellulose, PVDF, or nylon as the matrix material, since Grieve et al. teach the immobilization of proteins on these materials, and it has also been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to remove the liquid in the modified colloidal suspension of Nagai et al., Grieve et al., and Malvar et al. and arrive at a powdered form because powder is well known in the art to have greater stability and shelf life in comparison to a liquid form. In addition, such a form is easier to package in a kit, which provides increased convenience and economy. Also, a powder form may be easily reconstituted, as necessary, prior to use. Further, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to change the size of the particles to be within the range of the claims as an obvious matter of design choice. Such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Finally, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize molecules to the modified particles Nagai et al., Grieve et al., and Malvar et al. via non-covalent or electrostatic binding, as well as adsorption because all are well-known immobilization methods in the art, and one of skill would have had a reasonable expectation of success in using any of these methods to immobilize the molecules onto particles.

8. Claims 6-13, 15-16, 18, 20-21, 30-32, and 50-51 rejected under 35 U.S.C. 103(a) as being unpatentable over Delair et al. (US Pat. 6,033,853) in view of Grieve et al. (US Pat. 6,391,569 B1) and Malvar et al. (US Pat. 6,110,464).

Delair et al. teach a kit for detecting a nucleic acid sequence comprising a labeled nucleotide probe and a reagent consisting essentially of a suspension of insoluble particles on which at least one series of oligonucleotides are immobilized. The kit may be used in hybridization assays (abstract). The size of the particle may range from 50 nm to 5um (claim 7). The oligonucleotide probes may be immobilized on the particle via covalent binding or adsorption, and the label may be any known in the art, such as colored labels. However, the reference does not teach immobilization of proteins.

Grieve et al. teach the immobilization of a protein on a solid support or matrix, which may be particulate such as nylon, nitrocellulose, or PVDF. Beads may be used as the substrate of the reference. The immobilized protein of the reference is used to bind antibody (Col. 9). However, neither reference teaches the use of a blocking agent to block unoccupied binding sites.

Malvar et al. teach the use of BSA to coat a surface such that nonspecific adsorption sites are blocked, thereby reducing background caused by nonspecific binding (Col. 11).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize proteins on beads as taught by Grieve et al. with the composition of Delair et al. because Grieve et al. teach that proteins may be immobilized on solid supports, such as beads. As such, one would have had a reasonable expectation of success in immobilizing proteins instead of oligonucleotides on the particles of Delair et al. It would have been prima

facie obvious to use the blocking agent of Malvar et al. with the modified composition of Delair et al. and Grieve to prevent background caused by nonspecific binding. It would have also been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use nitrocellulose, PVDF, or nylon as the matrix material, since Grieve et al. teach the immobilization of proteins on these materials, and it has also been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to remove the liquid in the modified colloidal suspension of Delair et al., Grieve et al., and Malvar et al. and arrive at a powdered form because powder is well known in the art to have greater stability and shelf life in comparison to a liquid form. In addition, such a form is easier to package in a kit, which provides increased convenience and economy. Also, a powder form may be easily reconstituted, as necessary, prior to use. Further, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to change the size of the particles to be within the range of the claims as an obvious matter of design choice. Such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Finally, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize molecules to the modified particles Delair et al., Grieve et al., and Malvar et al. via non-covalent or electrostatic binding because both are well-known immobilization methods in the art, and one of skill would have had a reasonable expectation of success in using any of these methods to immobilize the molecules onto particles.

9. Claims 6, 10-13, 16, 20-21, 30-32, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. (US Pat. 5,122,600) in view of Grieve et al. (US Pat. 6,391,569 B1) and Malvar et al. (US Pat. 6,110,464).

Kawaguchi et al. teach DNA immobilized microspheres, wherein the particle has a diameter of 0.1-50 uM. Protein may be adsorbed to the DNA immobilized particles for protein purification. DNA may be attached to the particles via adsorption or covalent attachment (abstract). However, the reference does not teach immobilization of proteins.

Grieve et al. teach the immobilization of a protein on a solid support or matrix, which may be particulate such as nylon, nitrocellulose, or PVDF. Beads may be used as the substrate of the reference. The immobilized protein of the reference is used to bind antibody (Col. 9). However, neither reference teaches the use of a blocking agent to block unoccupied binding sites.

Malvar et al. teach the use of BSA to coat a surface such that nonspecific adsorption sites are blocked, thereby reducing background caused by nonspecific binding (Col. 11).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize proteins on beads as taught by Grieve et al. with the composition of Kawaguchi et al. because Grieve et al. teach that proteins may be immobilized on solid supports, such as beads. As such, one would have had a reasonable expectation of success in immobilizing proteins instead of DNA on the particles of Kawaguchi et al. It would have been *prima facie* obvious to use the blocking agent of Malvar et al. with the modified composition of Kawaguchi et al. and Grieve to prevent background caused by nonspecific binding. It would have also been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use

nitrocellulose, PVDF, or nylon as the matrix material, since Grieve et al. teach the immobilization of proteins on these materials, and it has also been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to remove the liquid in the modified colloidal suspension of Kawaguchi et al., Grieve et al., and Malvar et al. and arrive at a powdered form because powder is well known in the art to have greater stability and shelf life in comparison to a liquid form. In addition, such a form is easier to package in a kit, which provides increased convenience and economy. Also, a powder form may be easily reconstituted, as necessary, prior to use. Further, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to change the size of the particles to be within the range of the claims as an obvious matter of design choice. Such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Finally, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize molecules to the modified particles Kawaguchi et al., Grieve et al., and Malvar et al. via non-covalent binding because it is a well-known immobilization method in the art, and one of skill would have had a reasonable expectation of success in using such a methods to immobilize the molecules onto particles.

10. Claims 6-13, 15-16, 18, 20-21, 30-32, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seul (WO 97/40385) in view of Malvar et al. (US Pat. 6,110,464).

Seul teaches the manipulation of colloidal particles, wherein the particles may be 1 or 10 microns in diameter (page 55). A plurality of types of molecules may be attached to the surfaces of the particles, wherein each particle has a plurality if particle of one type (page 58). The molecules may be oligonucleotides or protein. The particle or beads may also be labeled by any known conventional label, including colored labels. However, the reference does not teach a blocking agent.

Malvar et al. teach the use of BSA to coat a surface such that nonspecific adsorption sites are blocked, thereby reducing background caused by nonspecific binding (col. 11).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the blocking agent of Malvar et al. with the composition of Seul to prevent background caused by nonspecific binding. In addition, it would have been obvious to use nitrocellulose, PVDF, or nylon as the matrix material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to remove the liquid in the colloidal suspension of Seul et al. and Malvar et al. and arrive at a powdered form because powder is well known in the art to have greater stability and shelf life in comparison to a liquid form. In addition, such a form is easier to package in a kit, which provides increased convenience and economy. Also, a powder form may be easily reconstituted, as necessary, prior to use. Further, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to change the size of the particles to be within the range of the claims as an obvious matter of design choice, especially considering that Seul

contemplates the use of particles as small as 1 uM, and the slightest reduction from that figure would fall within the range recited by the claims. Such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Finally, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to immobilize molecules to the particles of Seul et al. and Malvar et al. via covalent, non-covalent, electrostatic, or adsorptive techniques because all are well known immobilization methods in the art, and one of skill would have had a reasonable expectation of success in using any of these methods to immobilize the molecules onto particles.

Response to Arguments

11. Applicant's arguments filed 8/30/04 have been fully considered but they are not persuasive.
12. Applicant first argues that the particles of the present references are substantially smaller than that of the Van Ness references, thereby leading to enhanced results; however, any claim of superior and unexpected results must be in the form of a declaration, and not simply a conclusory statement. If the results are superior but expected given the combination of references, a 103 rejection remains proper. Applicant also argues that the holding of *In re Rose*, only applies to incremental changes in size, but had not provided any basis for this narrow interpretation of the holding in that case.
13. Applicant's arguments with respect to the differences between proteins and oligonucleotides, thus rendering the combination of Van Ness and Grieve inappropriate, are not convincing. The present claims are drawn to a composition, so any differences in terms of

manipulation of the different molecules are not deemed relevant to the patentability of the composition, and may only be relevant for method claims. In addition, there is no requirement in the claims of maintenance of a molecule's 3-dimensional shape.

14. Applicant argues that Nagai does not teach forming beads for attachment to a biomolecule, but the examiner maintains that the combination of Grieve with Nagai does. In addition, the newly cited Malvar reference is relied upon for the teaching of a blocking molecule.

15. In terms of Delair, the examiner agrees that the reference does not teach the matrix material of the present claims, but Grieve cures this deficiency. In addition, the newly cited Malvar reference is relied upon for the teaching of a blocking molecule.

16. In response to applicant's argument that Delair uses their beads for a different purpose than the claimed invention, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

17. In terms of Kawaguchi, the examiner agrees that the reference does not teach the matrix material of the present claims, but Grieve cures this deficiency, and the newly cited Malvar reference is relied upon for the teaching of a blocking molecule. Applicant's arguments with respect to Seul are similarly unconvincing for reasons of record. In addition, applicant argues that the particles of Seul are only 1 to 10 microns, thereby falling outside the range of less than 1 micron recited by applicants. However, applicant had conceded previously in their response that

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the holding of *In re Rose* at least applies to incremental changes in size, and as such, would apply to a reduction in size of the particles in Seul of the smallest degree, which would suffice to meet the range recited in the claims.

Conclusion

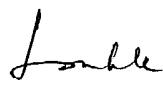
Claims 6-13, 15-16, 18, 20-21, 30-32, and 50-51 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kartic Padmanabhan whose telephone number is 571-272-0825. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kartic Padmanabhan
Patent Examiner
Art Unit 1641



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

